US008358564B2

(12) **United States Patent**
Oh et al.

(10) **Patent No.: US 8,358,564 B2**
(45) **Date of Patent: Jan. 22, 2013**

(54) **MOBILE TERMINAL AND METHOD OF SETTING ALARM THEREIN**

(75) Inventors: **Jung Yeob Oh**, Seongnam-si (KR); **Ji Sun Yang**, Seoul (KR)

(73) Assignee: **Samsung Electronics Co., Ltd.**, Suwon-si (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 753 days.

(21) Appl. No.: **12/250,230**

(22) Filed: **Oct. 13, 2008**

(65) **Prior Publication Data**

US 2009/0147628 A1 Jun. 11, 2009

(30) **Foreign Application Priority Data**

Dec. 6, 2007 (KR) 10-2007-0126040

(51) **Int. Cl.**
G04B 47/02 (2006.01)
G04C 21/00 (2006.01)
H04M 1/00 (2006.01)

(52) **U.S. Cl.** **368/10**; 368/13; 368/74; 368/250; 455/556.2; 715/963

(58) **Field of Classification Search** 368/10, 368/13, 28, 29, 41–43, 72–74, 250, 251; 455/556.2; 705/7.18–7.21; 715/963
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,220,540	A *	6/1993	Nishida et al.	368/41
5,457,476	A *	10/1995	Jenson	715/823
5,570,109	A *	10/1996	Jenson	715/823
5,754,629	A *	5/1998	Kunimori et al.	379/88.13
5,873,108	A *	2/1999	Goyal et al.	715/203
7,457,642	B2 *	11/2008	Kamata et al.	455/566
7,822,713	B2 *	10/2010	Hullot et al.	707/628
7,840,543	B2 *	11/2010	Guiheneuf et al.	707/695
2002/0191035	A1 *	12/2002	Selent	345/866
2005/0105396	A1	5/2005	Schybergson	
2005/0125737	A1 *	6/2005	Allen et al.	715/758
2007/0008827	A1 *	1/2007	Shin et al.	368/109

FOREIGN PATENT DOCUMENTS

KR	1020010054520	7/2001
KR	1020060121478	11/2006
KR	1020070010849	1/2007

OTHER PUBLICATIONS

International Search Report dated Mar. 31, 2009.
International PCT Written Opinion dated Mar. 31, 2009.

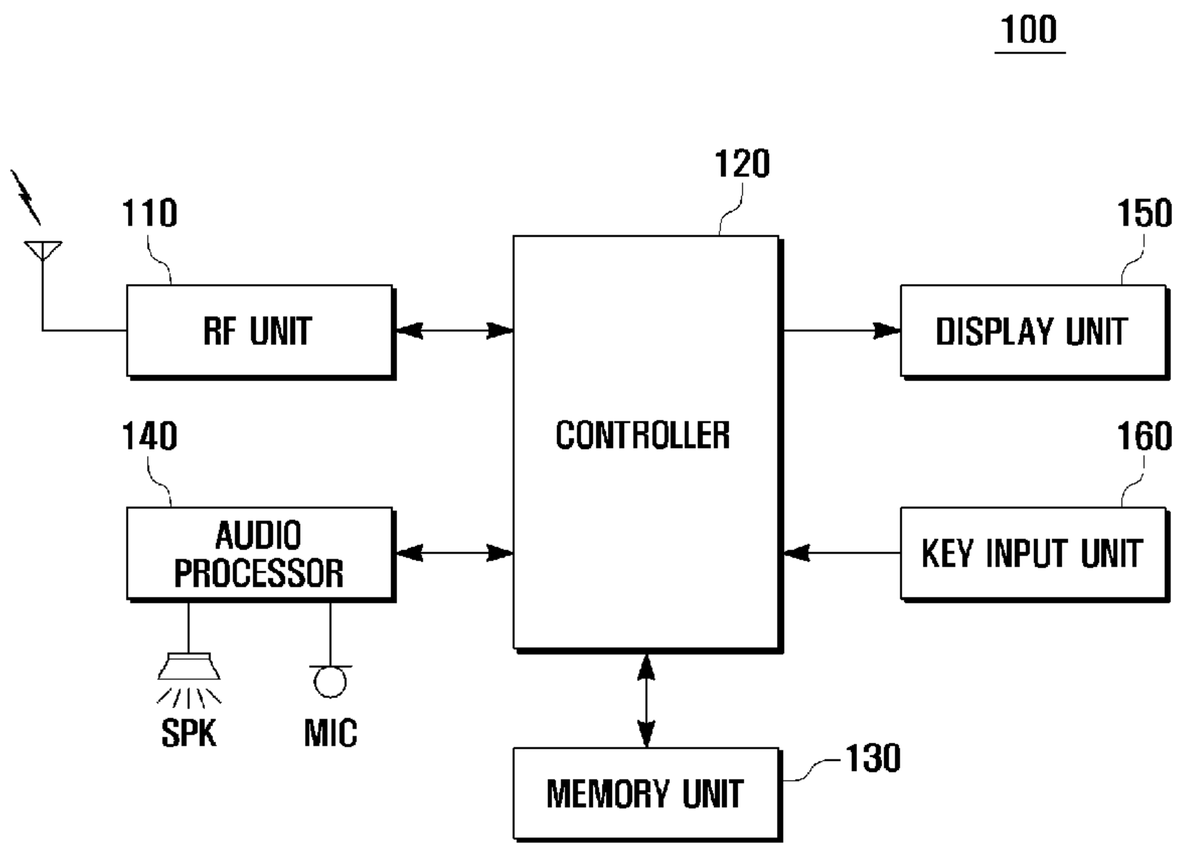
* cited by examiner

Primary Examiner — Vit W Miska
(74) *Attorney, Agent, or Firm* — H. C. Park & Associates, PLC

(57) **ABSTRACT**

A mobile terminal and a method of setting an alarm therein are provided. The mobile terminal includes a controller, a display unit, and a memory unit. The controller controls the display unit to display an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm screen being displayed in an alarm setting mode and sets an alarm at a selected time point of each alarm date in response to selection of the alarm time point. The controller also controls the memory unit to store a set alarm on an alarm date and alarm time point. The display unit displays an alarm image at an intersection of an alarm date and an alarm time point of each set alarm.

15 Claims, 10 Drawing Sheets



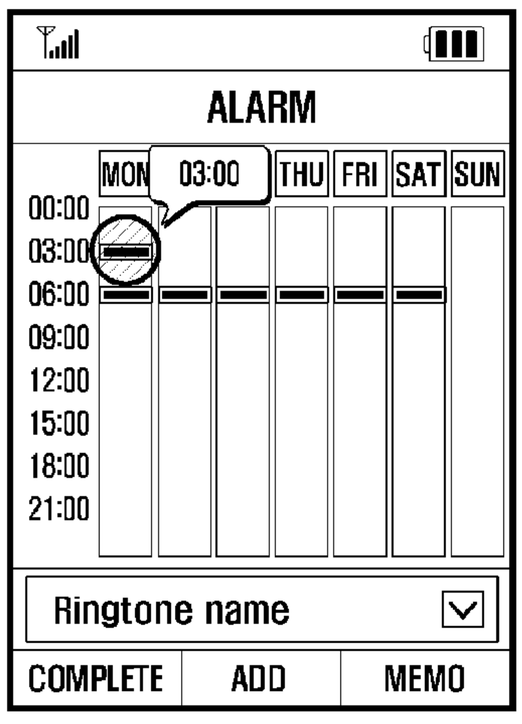


FIG . 1

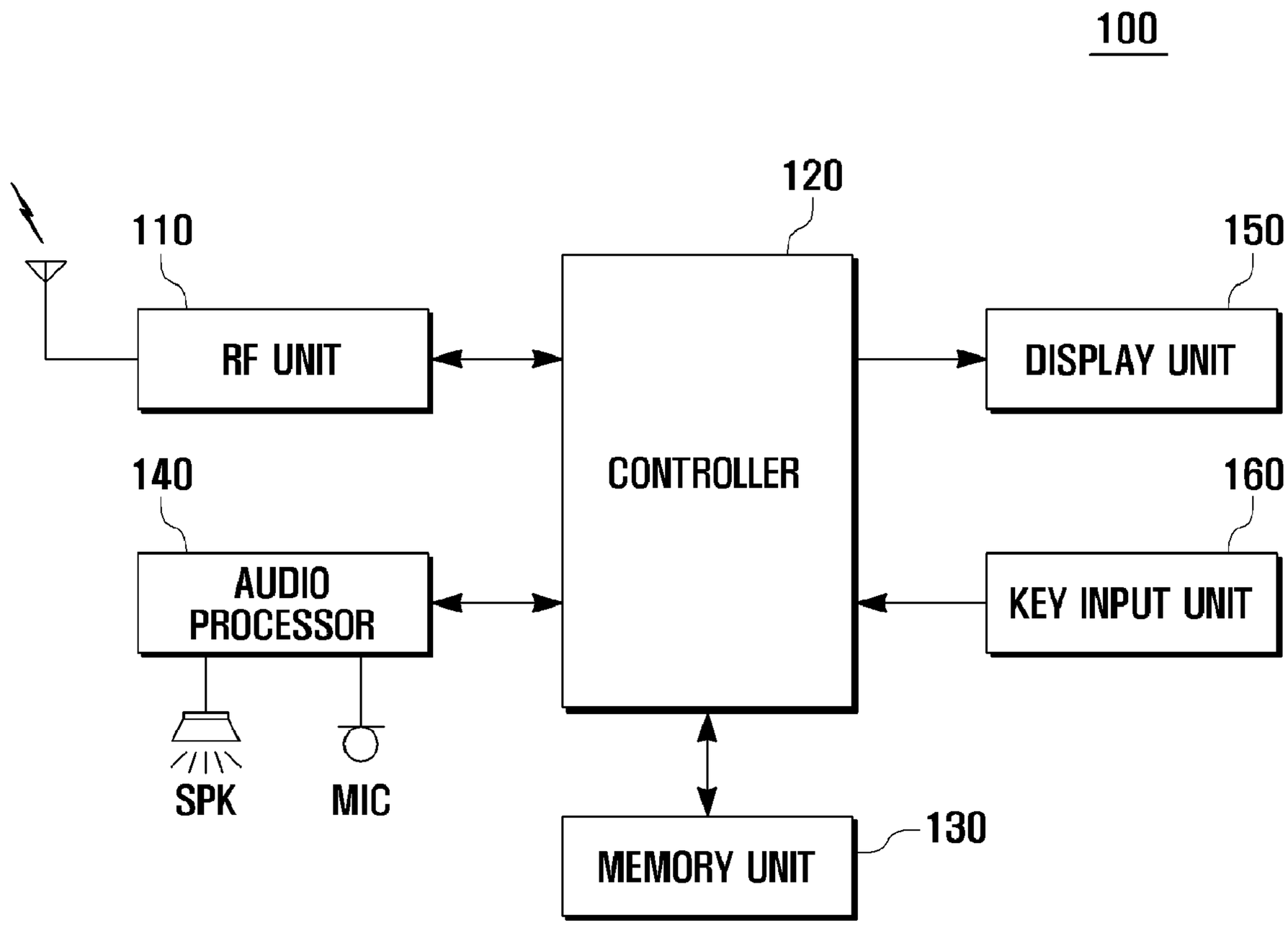

100
120
110
150
RF UNIT
CONTROLLER
DISPLAY UNIT
140
160
AUDIO PROCESSOR
KEY INPUT UNIT
SPK
MIC
130
MEMORY UNIT

FIG. 2

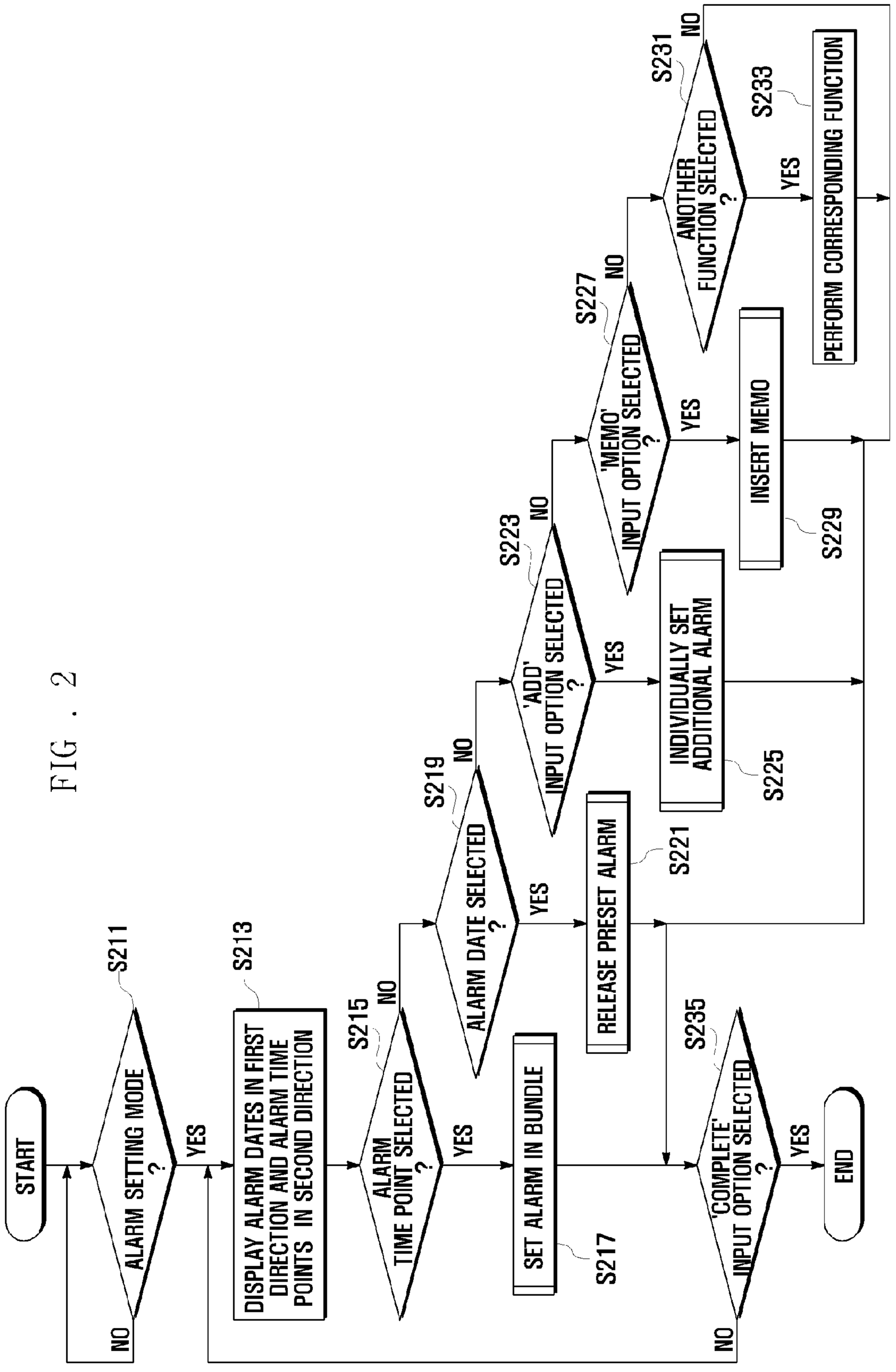

START
S211
ALARM SETTING MODE ?
NO
YES
S213
DISPLAY ALARM DATES IN FIRST DIRECTION AND ALARM TIME POINTS IN SECOND DIRECTION
S215
ALARM TIME POINT SELECTED ?
NO
YES
S217
SET ALARM IN BUNDLE
S235
'COMPLETE' INPUT OPTION SELECTED ?
NO
YES
END
ALARM DATE SELECTED ?
YES
RELEASE PRESET ALARM
S221
INDIVIDUALLY SET ADDITIONAL ALARM
S225
'ADD' INPUT OPTION SELECTED ?
NO
YES
S223
'MEMO' INPUT OPTION SELECTED ?
NO
YES
INSERT MEMO
S229
S227
ANOTHER FUNCTION SELECTED ?
NO
YES
S231
S233
PERFORM CORRESPONDING FUNCTION

FIG . 3A

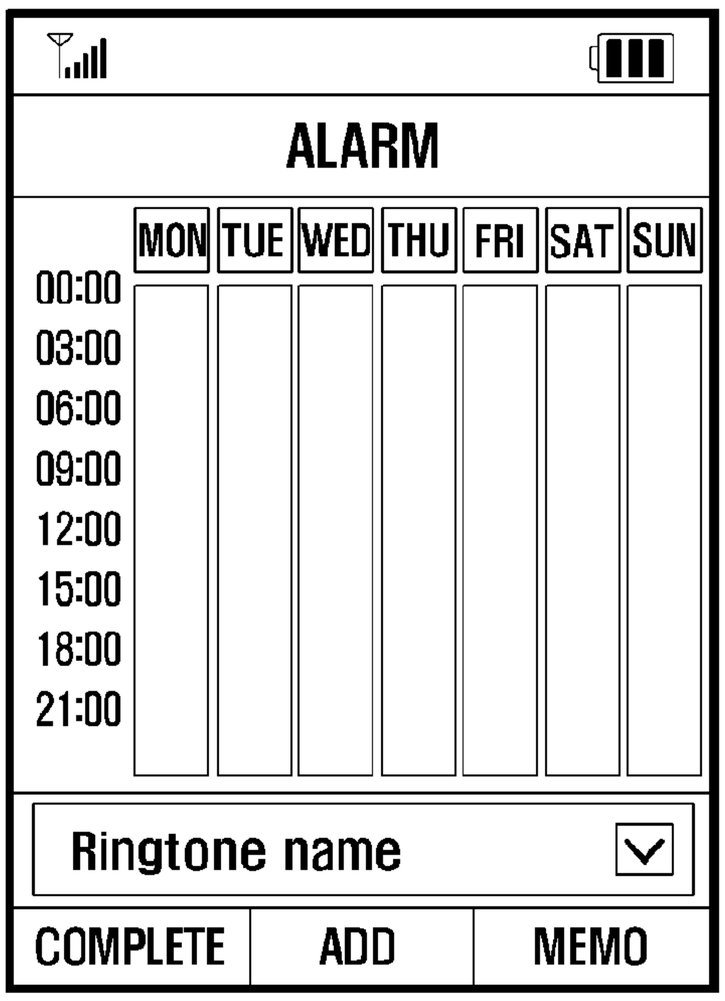

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3B

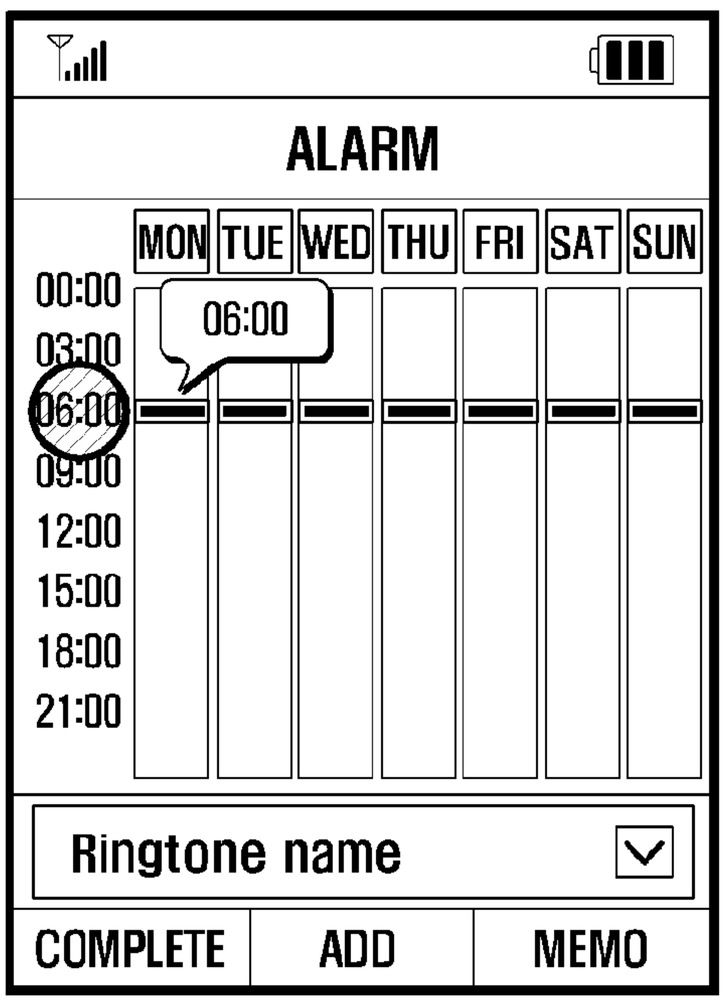

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
06:00
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3C

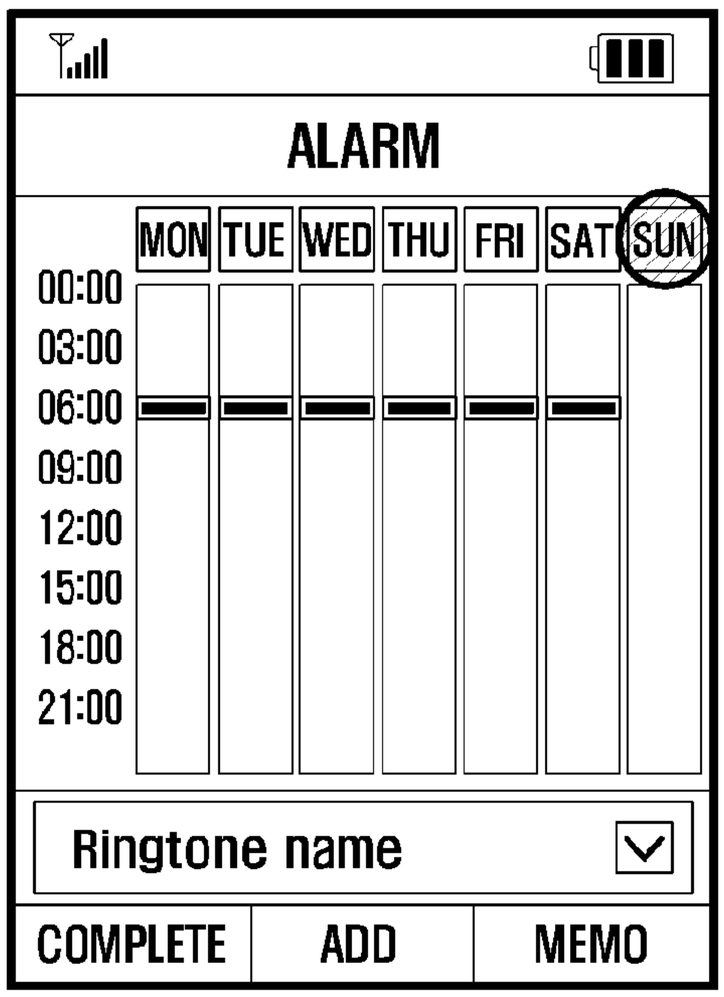

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3D

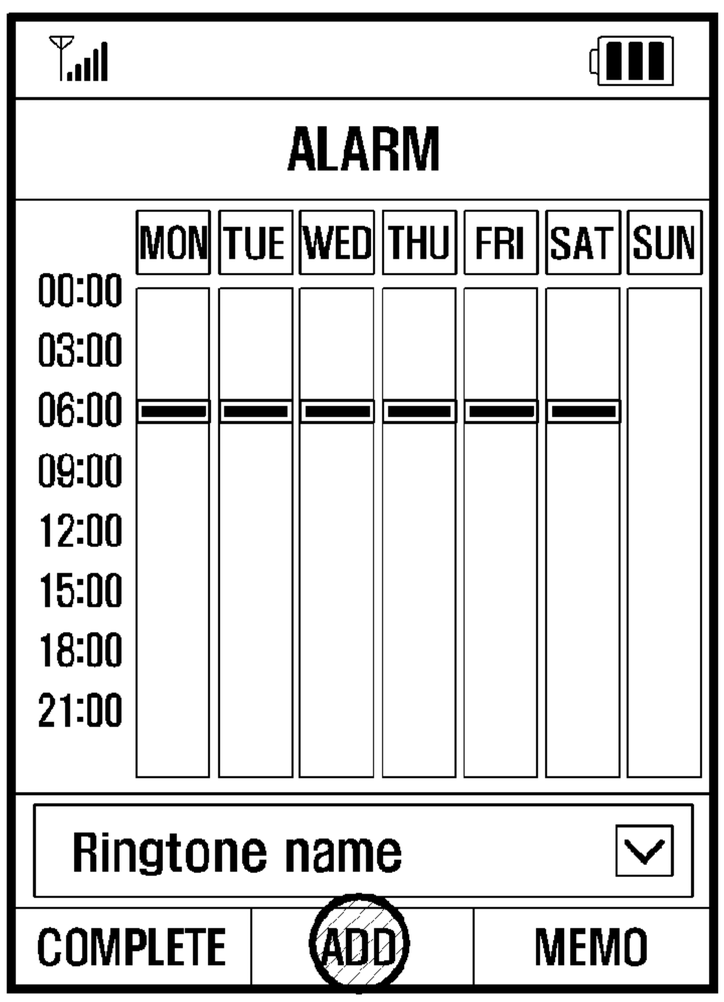

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3E

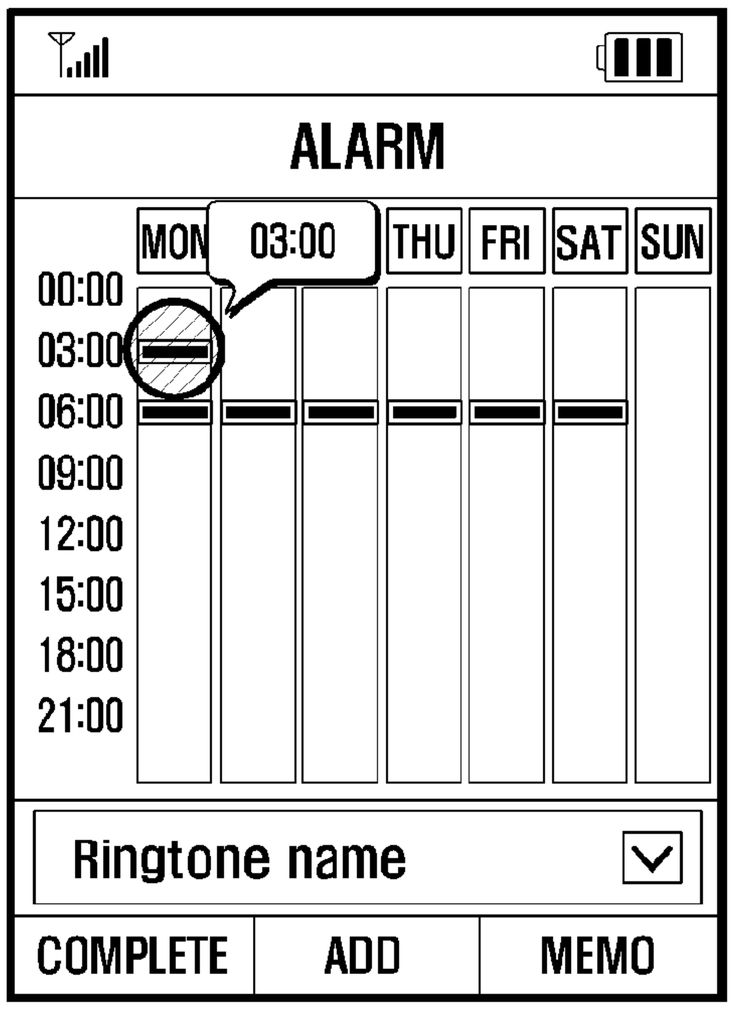

ALARM
MON
03:00
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3F

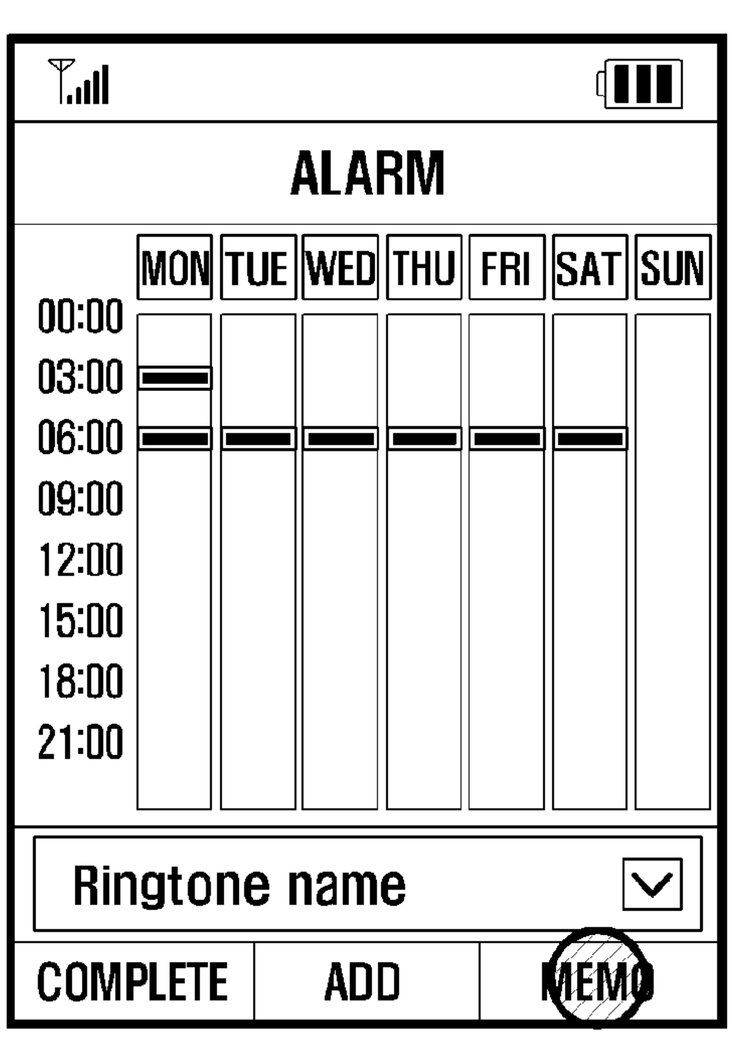

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3G

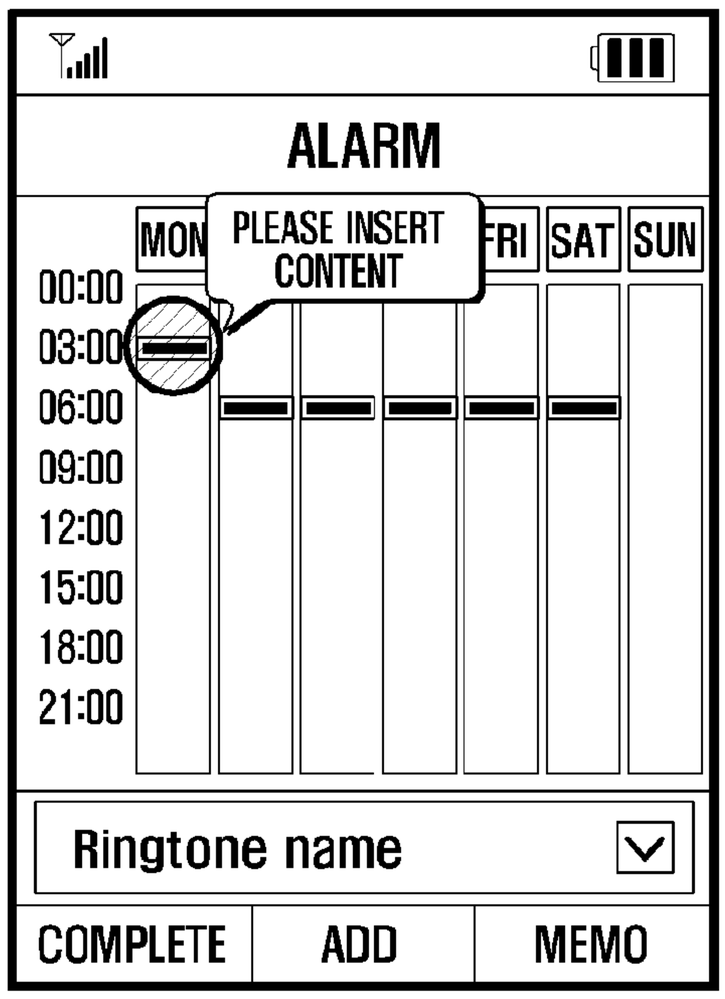

ALARM
MON
PLEASE INSERT CONTENT
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3H

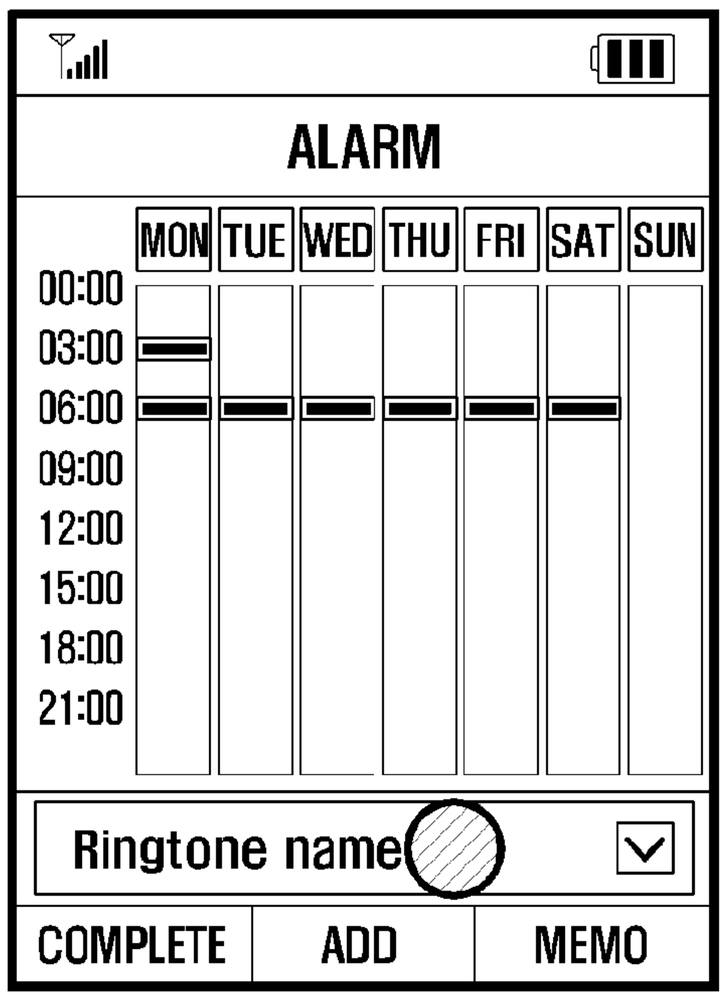

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 3I

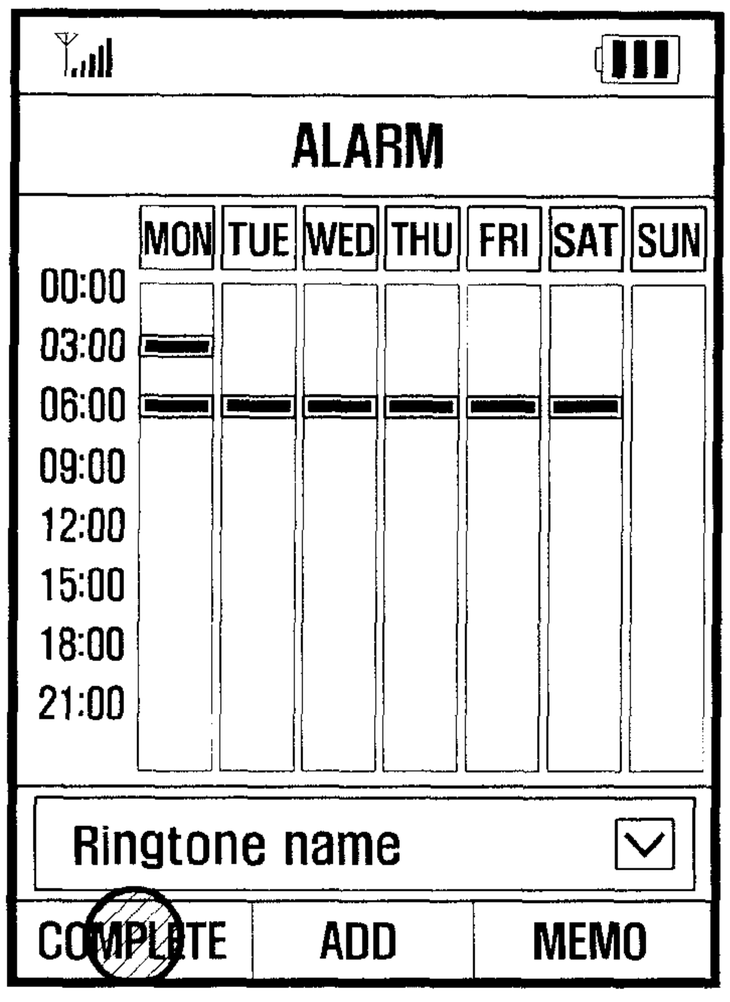

ALARM
MON
TUE
WED
THU
FRI
SAT
SUN
00:00
03:00
06:00
09:00
12:00
15:00
18:00
21:00
Ringtone name
COMPLETE
ADD
MEMO

FIG . 4

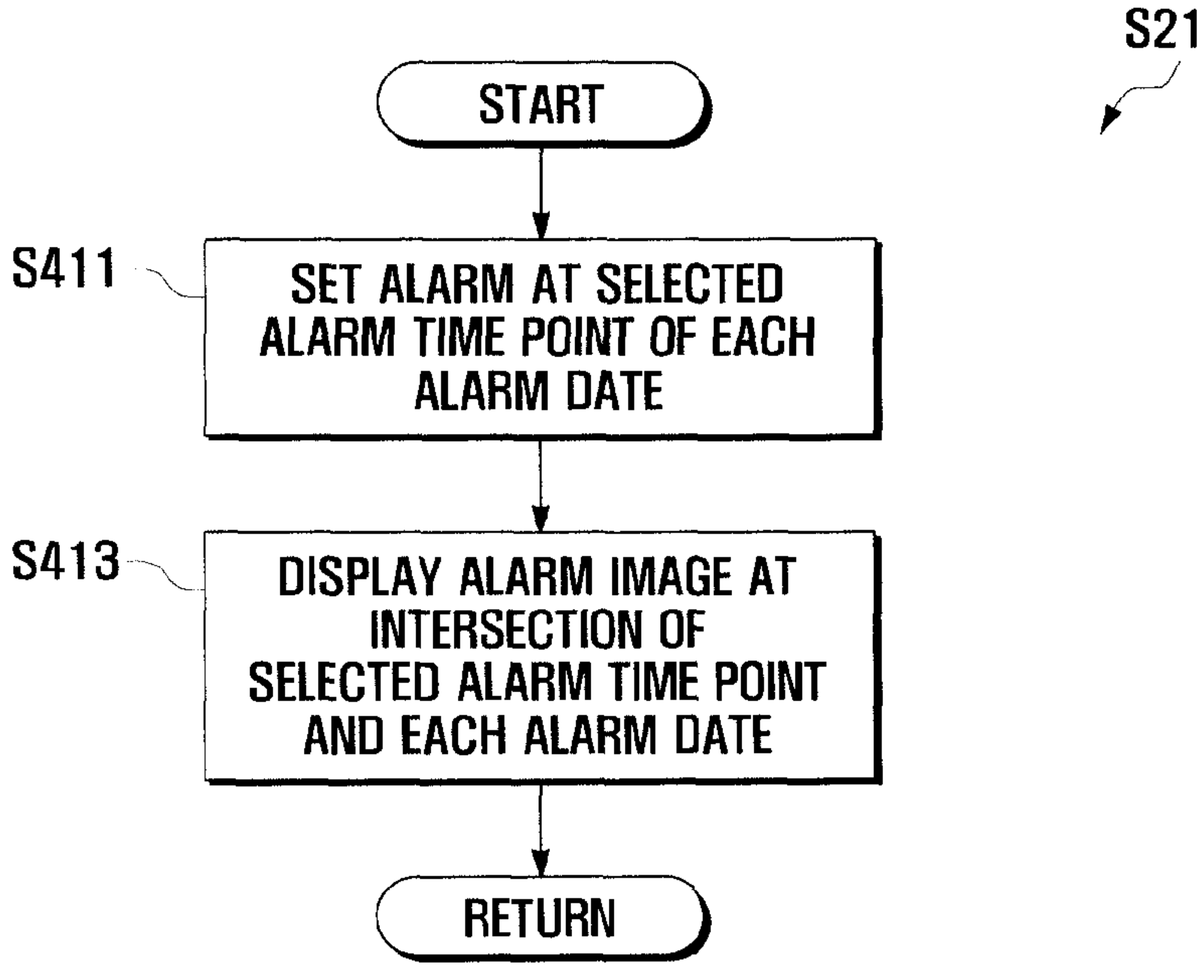

S217
START
S411
SET ALARM AT SELECTED ALARM TIME POINT OF EACH ALARM DATE
S413
DISPLAY ALARM IMAGE AT INTERSECTION OF SELECTED ALARM TIME POINT AND EACH ALARM DATE
RETURN

FIG . 5

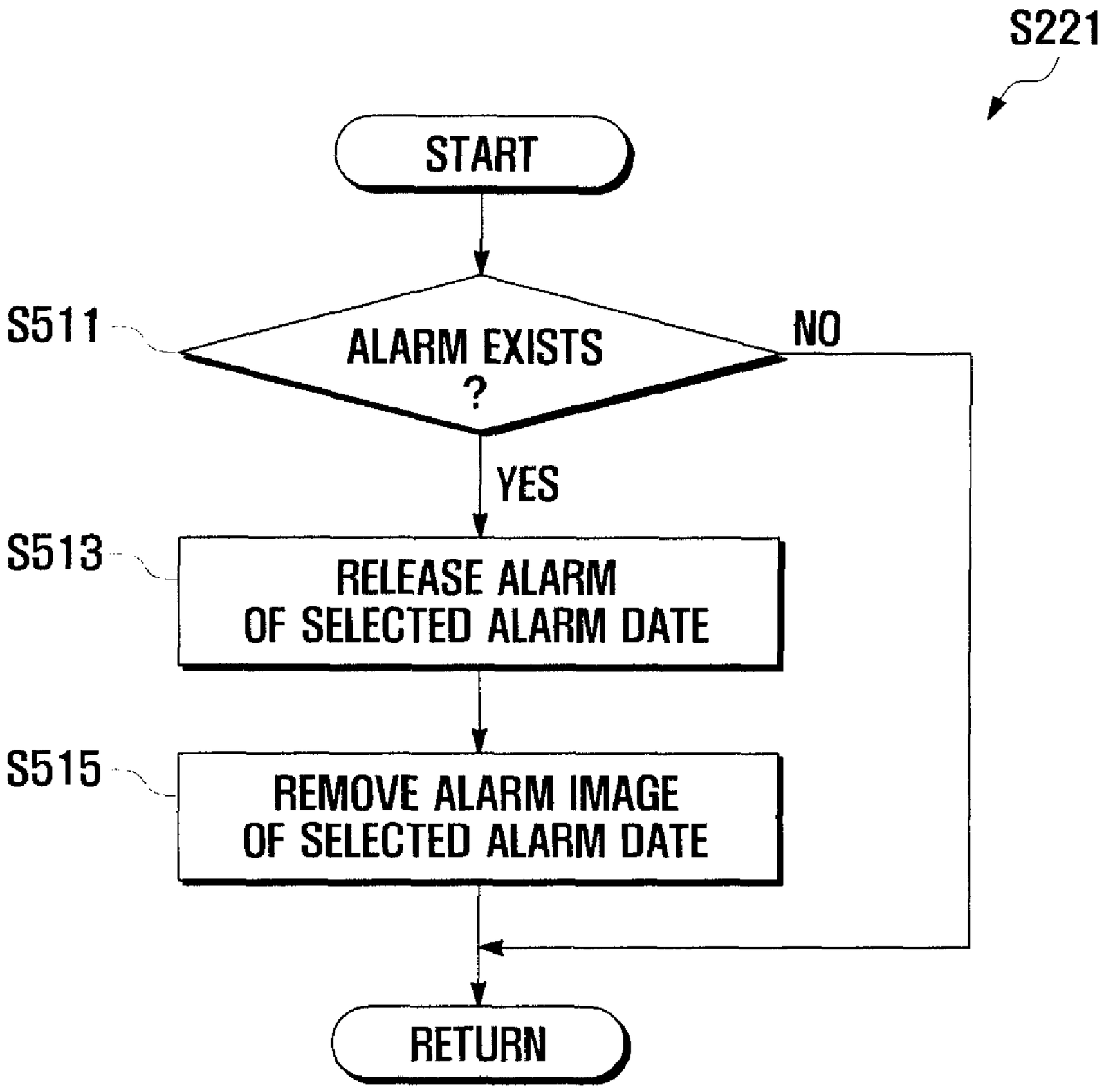

S221
START
S511
ALARM EXISTS ?
NO
YES
S513
RELEASE ALARM OF SELECTED ALARM DATE
S515
REMOVE ALARM IMAGE OF SELECTED ALARM DATE
RETURN

FIG . 6

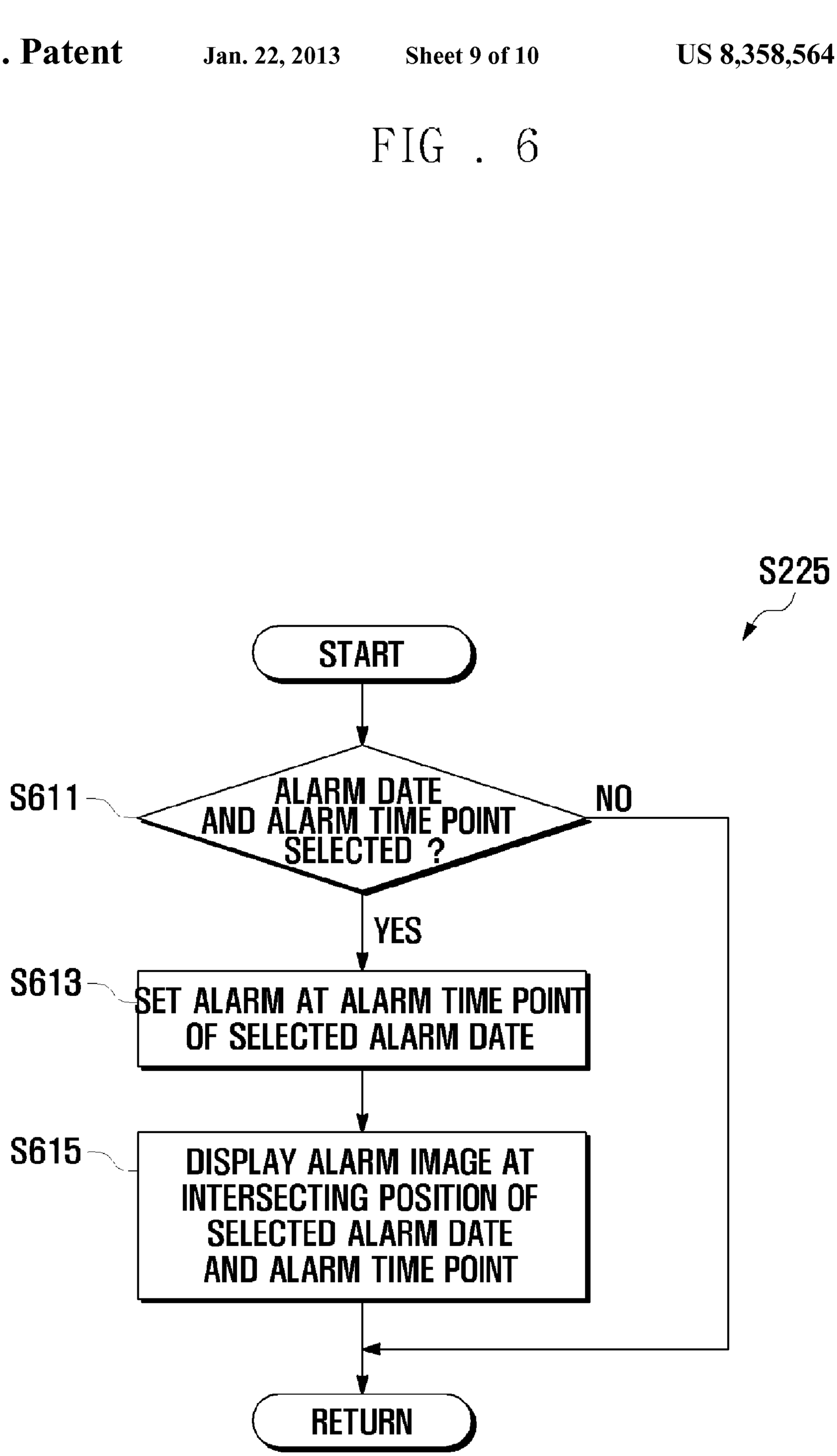
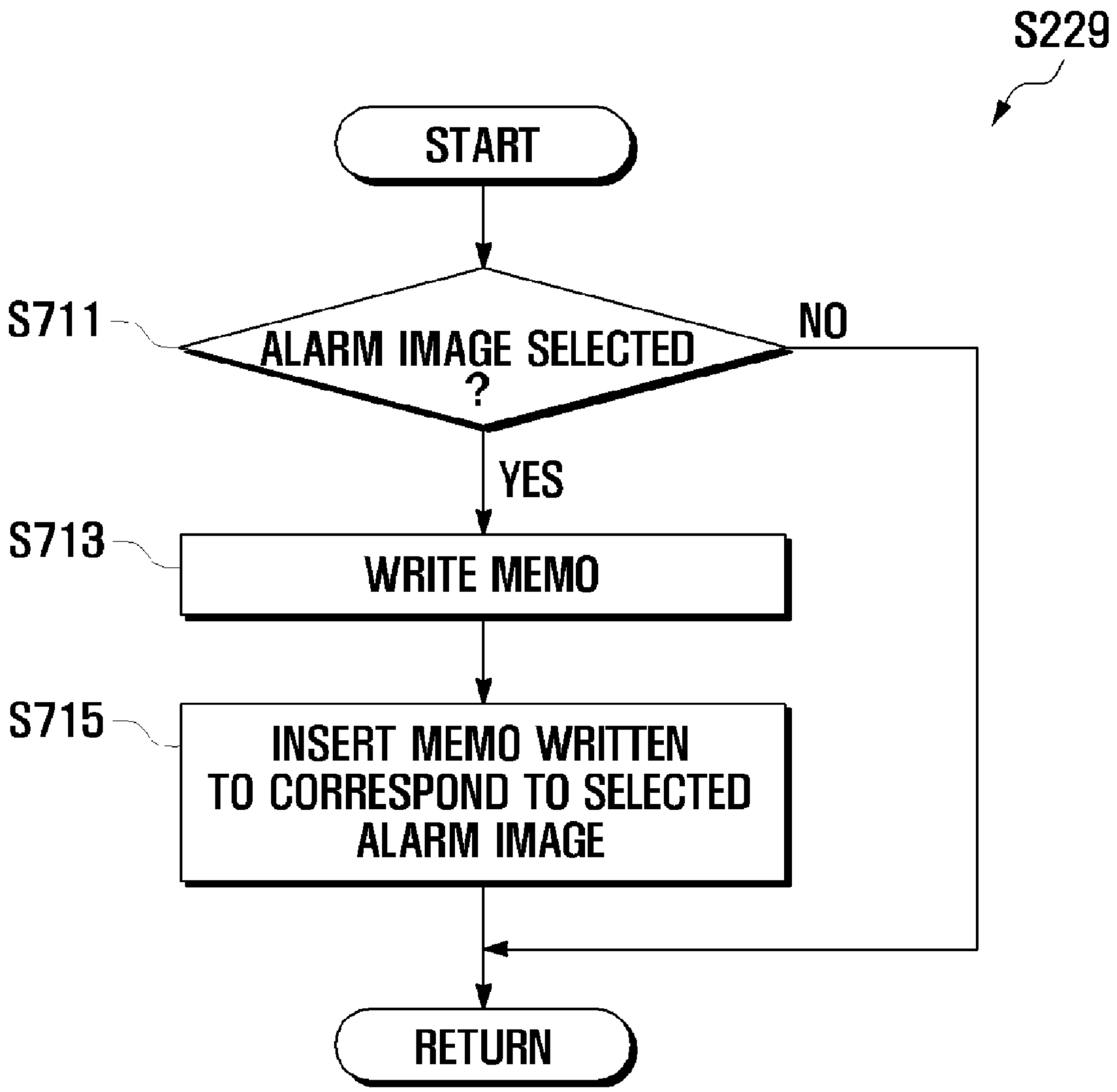

S225
START
S611
ALARM DATE AND ALARM TIME POINT SELECTED ?
NO
YES
S613
SET ALARM AT ALARM TIME POINT OF SELECTED ALARM DATE
S615
DISPLAY ALARM IMAGE AT INTERSECTING POSITION OF SELECTED ALARM DATE AND ALARM TIME POINT
RETURN

FIG . 7


S229
START
S711
ALARM IMAGE SELECTED ?
NO
YES
S713
WRITE MEMO
S715
INSERT MEMO WRITTEN TO CORRESPOND TO SELECTED ALARM IMAGE
RETURN

MOBILE TERMINAL AND METHOD OF SETTING ALARM THEREIN

CROSS REFERENCE TO RELATED APPLICATION

This application claims priority from and the benefit of Korean Patent Application No. 10-2007-0126040, filed on Dec. 6, 2007, which is hereby incorporated by reference for all purposes as if fully set forth herein.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a mobile terminal and a method of setting an alarm therein, and more particularly, to a mobile terminal and a method of setting an alarm therein that may enable easy setting of a plurality of alarms.

2. Discussion of the Background

Nowadays, due to the remarkable development of information and communication technology and semiconductor technology, the use of various mobile terminals has rapidly increased and become widespread. Particularly, recent mobile terminals may include various new functions in addition to a communication function such as voice communication and a character messaging service. Examples of functions added to the mobile terminal may include an alarm function and a calculator function.

However, an alarm function in the mobile terminal may be difficult to use. Particularly, when setting a plurality of alarms, the mobile terminal may individually set each alarm and separately manage the set alarms. Accordingly, it may be difficult for the user of the mobile terminal to check the set alarms in a bundle. For example, it may be difficult for the user of the mobile terminal to determine whether an alarm is set in the mobile terminal for a specific date or a specific time point and to set an alarm according to the determination result.

SUMMARY OF THE INVENTION

The present invention provides a mobile terminal and a method of setting an alarm therein that may enable easy setting of a plurality of alarms.

Additional features of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention.

The present invention discloses a method of setting an alarm in a mobile terminal including displaying an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm setting screen being displayed in an alarm setting mode, setting an alarm at a first alarm time point of each alarm date in response to selection of the first time point, and releasing the alarm of a first alarm date in response to selection of the first alarm date.

The present invention also discloses a method of setting an alarm in a mobile terminal having a touch screen including displaying an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm setting screen being displayed on the touch screen in an alarm setting mode, setting an alarm at a first alarm time point of each alarm date in response to detection of a touch and a drop on the first alarm time point, and releasing the alarm of a first alarm date in response to a touch and a drop on the first alarm date.

The present invention also discloses a mobile terminal including a display unit, a controller, and a memory unit. The controller controls the display unit to display an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm setting screen being displayed in an alarm setting mode and sets an alarm at a first time point of each alarm date in response to selection of the first time point. The controller also controls the memory unit to store a set alarm on an alarm date and alarm time point. The display unit displays an alarm image at an intersection of the alarm date and alarm time point of the set alarm.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory and are intended to provide further explanation of the invention as claimed.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention, and together with the description serve to explain the principles of the invention.

FIG. **1** is a block diagram showing a configuration of a mobile terminal according to an exemplary embodiment of the present invention.

FIG. **2** is a flowchart showing a method of setting an alarm according to another exemplary embodiment of the present invention.

FIG. **3**A, FIG. **3**B, FIG. **3**C, FIG. **3**D, FIG. **3**E, FIG. **3**F, FIG. **3**G, FIG. **3**H, and FIG. **3**I show examples of screens displayed in the method of setting an alarm of FIG. **2**.

FIG. **4** is a flowchart showing a process of setting an alarm in a bundle in the method of FIG. **2**.

FIG. **5** is a flowchart showing a process of releasing an alarm in the method of FIG. **2**.

FIG. **6** is a flowchart showing a process of individually setting an alarm in the method of FIG. **2**.

FIG. **7** is a flowchart showing a process of inserting a memo in the method of FIG. **2**.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

The invention is described more fully hereinafter with reference to the accompanying drawings, in which embodiments of the invention are shown. This invention may, however, be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided so that this disclosure is thorough, and will fully convey the scope of the invention to those skilled in the art. In the drawings, the size and relative sizes of layers and regions may be exaggerated for clarity. Like reference numerals in the drawings denote like elements.

It will be understood that when an element or layer is referred to as being "on" or "connected to" another element or layer, it can be directly on or directly connected to the other element or layer, or intervening elements or layers may be present. In contrast, when an element is referred to as being "directly on" or "directly connected to" another element or layer, there are no intervening elements or layers present.

In the following description, the term "alarm" indicates notification of a specific date or a specific time point in a mobile terminal. The term "alarm setting mode" indicates a mode of setting an alarm to occur at a specific date or a

specific time point in the mobile terminal. The alarm may be a plurality of notifications set in a bundle to a plurality of specific dates, or may be individually set to each specific date. The term "alarm date" indicates at least one of an alarm date and an alarm day for which each alarm may be set in the mobile terminal. The term "alarm time point" indicates a time point for which each alarm may be set in the mobile terminal. The term "alarm image" indicates an image notifying that an alarm is set for a specific alarm date and alarm time point. Such an alarm image may be provided in various forms according to the setting of the mobile terminal.

The term "alarm setting screen" indicates a screen displayed in an alarm setting mode. In the alarm setting screen, alarm dates are arranged in a first direction and alarm time points are arranged in a second direction. In this case, on the alarm setting screen, for each alarm date arranged in the first direction, a highlighted area may extend in the second direction, and for each alarm time point arranged in the second direction, a highlighted area may extend in the first direction. Here, the extended area of the first direction and that of the second direction may intersect. Further, when a preset alarm exists, the mobile terminal may display an alarm image corresponding to the preset alarm on the alarm setting screen. In addition, the alarm setting screen may include 'add', 'memo', and 'complete' input options.

The term "touch" indicates an operation in which a user of the mobile terminal touches a touch screen thereof with a stylus or a finger. The term "drop" indicates an operation in which the user of the mobile terminal removes the stylus or finger touching the touch screen from the touch screen. The term "drag" indicates an operation in which the user of the mobile terminal moves the stylus or finger in a state where the finger continues to touch the touch screen.

FIG. **1** is a block diagram showing a configuration of a mobile terminal **100** according to an exemplary embodiment of the present invention. In the exemplary embodiment, the mobile terminal **100** is exemplified as a mobile phone.

Referring to FIG. **1**, the mobile terminal **100** includes a radio frequency (RF) unit **110**, a controller **120**, a memory unit **130**, an audio processor **140**, a display unit **150**, and a key input unit **160**.

The RF unit **110** performs a wireless communication function of the mobile terminal **100**. The RF unit **110** includes an RF transmitter to up-convert a frequency of a signal to be transmitted and amplify the signal, and an RF receiver to low-noise amplify a received signal and down-convert a frequency of the signal.

The controller **120** controls the general operations of the mobile terminal **100**. The controller **120** includes a data processor including a transmitter to encode and modulate a signal to be transmitted and a receiver to demodulate and decode a received signal. The data processor includes a modem and a codec. The codec includes a data codec to process packet data and an audio codec to process an audio signal such as a voice.

The controller **120** controls the display unit **150** to display an alarm setting screen in which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction in an alarm setting mode according to an exemplary embodiment of the present invention. If an alarm time point is selected, the controller **120** sets an alarm at the selected alarm time point of each alarm date.

Alternatively, when an 'add' input option is selected, if an alarm date is selected, the controller **120** additionally sets an alarm at the selected alarm time point of the selected alarm date. In this case, the controller **120** controls the display unit **150** to display an alarm image at an intersection of an alarm date and an alarm time point of an alarm set according to an exemplary embodiment of the present invention. Further, the controller **120** releases a preset alarm of the selected alarm date. In addition, when a 'memo' input option is selected, the controller **120** inserts a memo into the selected alarm.

The memory unit **130** includes a program memory and a data memory. The program memory stores programs to control general operations of the mobile terminal **100**. The program memory stores programs to set an alarm according to the exemplary embodiment of the present invention. The data memory stores data generated while performing programs. The memory unit **130** stores a preset alarm on an alarm date and alarm time point basis by the control of the controller **120**.

The audio processor **140** reproduces an audio signal received from the audio codec of the data processor through a speaker SPK and transmits an audio signal generated in a microphone MIC to the audio codec of the data processor.

The display unit **150** displays user data output from the controller **120**. The display unit **150** may include a liquid crystal display (LCD) unit including an LCD controller, a memory to store image data, and an LCD display element. If the LCD unit is embodied as a touch screen, the display unit **150** may be operated as an input unit. In this case, the touch screen detects an operation such as a touch, a drop, and a drag from a change in a value of a physical characteristic, for example resistance and capacitance. The touch screen converts the change in the value of the physical characteristic to a touch signal.

The key input unit **160** includes keys to input numeral and character information and function keys to set various functions.

FIG. **2** is a flowchart showing a method of setting an alarm according to another exemplary embodiment of the present invention. FIG. **3**A, FIG. **3**B, FIG. **3**C, FIG. **3**D, FIG. **3**E, FIG. **3**F, FIG. **3**G, FIG. **3**H, and FIG. **3**I show examples of screens displayed in the method of setting an alarm of FIG. **2**. FIG. **3**A, FIG. **3**B, FIG. **3**C, FIG. **3**D, FIG. **3**E, FIG. **3**F, FIG. **3**G, FIG. **3**H, and FIG. **3**I show a case where the display unit **150** of the mobile terminal is embodied as a touch screen. FIG. **3**A shows a screen displayed in an alarm setting mode, FIG. **3**B shows a screen displayed when an alarm time point is selected, FIG. **3**C shows a screen displayed when an alarm date is selected, FIG. **3**D and FIG. **3**E show screens displayed when an alarm is added, FIG. **3**F and FIG. **3**G show screens displayed when a memo is inserted, FIG. **3**H shows a screen displayed when another function is performed, and FIG. **3**I shows a screen displayed when a request to terminate an alarm setting process is input.

Referring to FIG. **2**, the controller **120** determines whether a request to execute an alarm setting mode is input (S**211**). If a request to execute an alarm setting mode is input, the controller **120** controls the display unit **150** to display an alarm setting screen (S**213**), as shown in FIG. **3**A. In the example of FIG. **3**A, the controller **120** arranges alarm dates in a horizontal first direction and alarm time points in a vertical second direction on the alarm setting screen.

The controller **120** determines whether a specific alarm time point is selected on the alarm setting screen (S**215**). If a specific alarm time point is selected on the alarm setting screen, the controller **120** sets an alarm in a bundle at the selected alarm time point (S**217**), as shown in FIG. **3**B. That is, if a specific alarm time point is selected without selecting a specific alarm date, the controller **120** sets an alarm at the selected alarm time point for all alarm dates in a bundle.

When the display unit **150** is embodied as a touch screen, if a touch is detected on the touch screen when displaying the alarm setting screen, the controller **120** determines that an alarm time point of the touch position is selected.

FIG. **4** is a flowchart showing a process of setting an alarm in a bundle at step S**217** of the method of FIG. **2**.

Referring to FIG. **4**, if a specific alarm time point is selected, the controller **120** sets an alarm at the selected alarm time point of each alarm date (S**411**). That is, the controller **120** sets an alarm in a bundle at an identical alarm time point of all alarm dates.

The controller **120** controls to display an alarm image at intersections of the selected alarm time point and each alarm date (S**413**), and the process returns to FIG. **2**.

Although not shown in the screen example of FIG. **3**B, when the display unit **150** is embodied as a touch screen, if a drop is detected at a touch position, the controller **120** performs steps S**411** and S**413**. However, if a drop is not detected at a touch position, but rather a drag is detected from the touch position in the first direction, the controller **120** detects all alarm dates that are touched in the first direction of the drag path. Thereafter, the controller **120** sets an alarm in a bundle at the selected alarm time point of each alarm date included in the drag. Further, the controller **120** controls the display unit **150** to display an alarm image at intersections of the selected alarm time points and the alarm dates included in the drag path, and the process returns to FIG. **2**.

If a specific alarm time point is not selected on the alarm setting screen at step S**215**, the controller **120** determines whether a specific alarm date is selected on the alarm setting screen (S**219**). If a specific alarm date is selected on the alarm setting screen by a touch and drop, the controller **120** releases the alarm of the selected alarm date (S**221**), as shown in FIG. **3**C. That is, if a specific alarm date is selected without selecting a specific alarm time point, the controller **120** releases the alarm of the selected alarm date.

FIG. **5** is a flowchart showing a process of releasing an alarm at step S**221** of the method of FIG. **2**.

Referring to FIG. **5**, if a specific alarm date is selected, the controller **120** determines whether an alarm exists at the selected alarm date (S**511**).

If an alarm does not exist at the selected alarm date, the process returns to FIG. **2**. If an alarm exists at the selected alarm date, the controller **120** releases the alarm of the selected alarm date (S**513**).

The controller **120** removes an alarm image displayed at a position corresponding to the selected alarm date (S**515**), and the process returns to FIG. **2**.

If a specific alarm date is not selected at step **219**, the controller **120** determines whether an 'add' input option is selected on the alarm setting screen (S**223**). If an 'add' input option is selected on the alarm setting screen, as shown in FIG. **3**D, the controller **120** individually sets an additional alarm for a selected alarm time point and alarm date (S**225**), as shown in FIG. **3**E. That is, if an 'add' input option is selected without having selected a specific alarm time point at step **215** or an alarm date at step **223**, the controller **120** individually sets an additional alarm.

FIG. **6** is a flowchart showing a process of individually setting an alarm at step S**225** of the method of FIG. **2**.

Referring to FIG. **6**, after an 'add' input option is selected, the controller **120** determines whether a specific alarm date and alarm time point are selected (S**611**). If a specific alarm date and alarm time point are selected, the controller **120** sets an alarm at the selected alarm time point of the selected alarm date (S**613**). In this case, the alarm date and the alarm time point may be sequentially selected.

When the display unit **150** is embodied as a touch screen, if a touch is detected on the touch screen, the controller **120** detects a corresponding alarm date and alarm time point at the touch position and sets an alarm at the detected alarm time point of the detected alarm date.

The controller **120** controls the display unit **150** to display an alarm image at an intersection of the selected alarm date and alarm time point (S**615**), and the process returns to FIG. **2**.

If an 'add' input option is not selected on the alarm setting screen at step **223**, the controller **120** determines whether a 'memo' input option is selected on the alarm setting screen (S**227**). If a 'memo' input option is selected on the alarm setting screen, as shown in FIG. **3**F, the controller **120** inserts a memo (S**229**), as shown in FIG. **3**G. In this case, the controller **120** inserts a memo written to correspond to a specific alarm.

FIG. **7** is a flowchart showing a process of inserting a memo of step S**229** in the method of FIG. **2**.

Referring to FIG. **7**, after a 'memo' input option is selected, the controller **120** determines whether a specific alarm image is selected (S**711**). If a specific alarm image is selected, the controller **120** writes a memo according to input by a user (S**713**).

The controller **120** inserts the memo written to correspond to the selected alarm image (S**715**), and the process returns to FIG. **2**.

If a 'memo' input option is not selected on the alarm setting screen at step S**227**, the controller **120** determines whether a request for another function is input on the alarm setting screen (S**231**). If a request for another function is input on the alarm setting screen, as shown in FIG. **3**H, the controller **120** performs the corresponding function (S**233**). For example, the controller **120** may select which one of an audio signal, a text signal, and a vibration signal is to be used when a preset alarm is output. The controller **120** may select an alarm reproduction sound for an alarm, or may enlarge or reduce a predetermined area of the alarm setting screen to enable a user of the mobile terminal **100** to more easily select an alarm date or an alarm time point.

Alternatively, when the display unit **150** is embodied as a touch screen, if a sequential touch, drag, and drop action is detected at a specific alarm image, the controller **120** moves the alarm image to the drop position. That is, the controller **120** may change an alarm date or alarm time point.

The controller **120** determines whether a 'complete' input option is selected on the alarm setting screen (S**235**). If a 'complete' input option is selected on the alarm setting screen, as shown in FIG. **3**I, the controller **120** terminates the alarm process. If a 'complete' input option is not selected on the alarm setting screen, the controller **120** repeatedly performs steps S**213** to S**233** until a 'complete' input option is selected.

As described above, according to exemplary embodiments of the present invention, when an alarm is set in the mobile terminal, a plurality of alarms may be easily set and released on a single screen. The mobile terminal may integrally manage preset alarms on the single screen. Thereby, a user of the mobile terminal may integrally check the preset alarms. Further, upon setting another alarm in the mobile terminal, checking of a preset alarm and setting of another alarm may be performed simultaneously.

It will be apparent to those skilled in the art that various modifications and variation can be made in the present invention without departing from the spirit or scope of the invention. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A method of setting an alarm in a mobile terminal, comprising:

displaying an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm setting screen being displayed in an alarm setting mode;

setting a first alarm at a first alarm time of each alarm date, in response to a selection of the first alarm time point; and

setting a second alarm at a second alarm time point of a first one of the alarm dates, in response to selection of an 'add' input button from the alarm setting screen and selection of the second alarm time point and the first one of the alarm dates.

2. The method of claim **1**, further comprising:

setting an additional alarm at another alarm time point of a second one of the alarm dates in response to selection of the 'add' input button from the alarm setting screen and selection of the another alarm time point and the second one of the alarm dates.

3. The method of claim **1**, further comprising displaying an alarm image at an intersection of an alarm date and an alarm time point corresponding to each alarm.

4. The method of claim **1**, further comprising inserting a memo into a selected alarm in response to selection of a 'memo' input option from the alarm setting screen and selection of the alarm.

5. The method of claim **1**, further comprising releasing the alarm of a first alarm date in response to selection of the first alarm date.

6. A method of setting an alarm in a mobile terminal having a touch screen, comprising:

displaying an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction on the touch screen, the alarm setting screen being displayed in an alarm setting mode;

setting an alarm at a first alarm time point of each alarm date in response to detection of a touch and a drop at the first alarm time point; and

releasing the alarm of a first alarm date in response to detection of a touch and a drop at the first alarm date,

wherein the setting of the alarm comprises:

detecting a touch at the first alarm time point and a drag path extending in the first direction and from the first alarm time point;

determining whether any of the alarm dates are disposed in the drag path; and

setting an alarm at the first alarm time point of any of the alarm dates disposed in the drag path.

7. The method of claim **6**, further comprising:

detecting a second alarm date and a third alarm time point corresponding to a detected touch position on the touch screen in response to selection of an 'add' input option and selection of the third alarm time point and the second alarm date; and

setting an additional alarm at the third alarm time point of the second alarm date.

8. The method of claim **6**, further comprising displaying an alarm image at an intersection of an alarm date and an alarm time point-corresponding to each alarm.

9. The method of claim **6**, further comprising inserting a memo into a selected alarm in response to selection of a 'memo' input option from the alarm setting screen and selection of the alarm.

10. A mobile terminal, comprising:

a touch screen to detect at least one of a touch and drop and a touch and drag;

a controller to control the touch screen to display an alarm setting screen on which alarm dates are arranged in a first direction and alarm time points are arranged in a second direction, the alarm setting screen being displayed in an alarm setting mode, and to set an alarm at a first alarm time point of each alarm date, in response to selection the first alarm time point; and

a memory unit to store the set alarm,

wherein in response to the detection of a touch at the first alarm time point and a drag path extending in the first direction and from the first alarm time point, the controller is further configured to determine whether any of the alarm dates are disposed in the drag path and set an alarm at the first alarm time point of any of the alarm dates disposed in the drag path.

11. The mobile terminal of claim **10**, wherein the controller is further configured to release a set alarm of a first alarm date in response to selection of the first alarm date on the alarm setting screen.

12. The mobile terminal of claim **10**, wherein the alarm setting screen is configured to further display an 'add' input option, and the controller is further configured to set an additional alarm at a selected second alarm time point of a selected second alarm date in response to selection of the 'add' input option and selection of the second alarm time point and the second alarm date.

13. The mobile terminal of claim **10**, wherein the alarm setting screen is further configured to display a 'memo' input option, and the controller is further configured to insert a memo into a selected alarm in response to selection of the 'memo' input option and selection of the alarm.

14. The mobile terminal of claim **10**, wherein the alarm setting screen is further configured to display an 'add' input option, and the controller is further configured to detect a second alarm date and a second alarm time point corresponding to a detected touch position on the touch screen and set an additional alarm at the second alarm time point of the second alarm date in response to selection of the 'add' input option and selection of the second alarm date and the second alarm time point.

15. The mobile terminal of claim **10**, wherein the controller is further configured to control the touch screen to display an alarm image at an intersection of an alarm date and an alarm time point corresponding to each alarm.

* * * * *